

Applicant: Diederer
Application No.: Unassigned
Filing Date: Herewith
Docket No.: 903-153 PCT/US
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A. Amendments to the Specification:

Please add the following immediately after the title of the invention:

CROSS-REFERENCE TO RELATED APPLICATIONS:

This application is the National Stage of International Application No. PCT/NL2004/000249, filed April 14, 2004, which claims the benefit of Netherlands Application No. NL 1023215, filed April 17, 2003, the contents of which is incorporated by reference herein.

Please add the following new paragraph immediately prior to page 1, line 5, and after the Cross Reference to Related Applications, as follows:

FIELD OF THE INVENTION:

Please add the following new paragraph immediately prior to page 1, line 20, as follows:

BACKGROUND OF THE INVENTION:

Please amend the paragraph beginning at page 1, line 20, as follows:

A printing device, ~~of this type~~ is known in the art, and is also referred to as a "piezo-DOD inkjet printer". ~~A device of this type generally includes~~ comprises a print head, which is arranged on a carriage which can move to and fro transversely with respect to the direction of movement of the substrate which is to be printed. The print head ~~includes~~ comprises at least one spray nozzle, generally a number, for example 8 or 16, for each colour, this nozzle being in communication with a flexible working container via a feed passage. Furthermore, the print head for each spray nozzle ~~includes~~ comprises a piezoelectric element for generating ink drops. A shockwave can be generated electrically in the print head by means of the piezoelectric element, with the result that each time each shockwave forms a drop from the printing medium. A drop of this type is only formed if it is required in order to print the substrate. This principle

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has been given the name drop-on-demand. In addition to "piezo-DOD", "thermal DOD" is also known, in which heating elements are used instead of a piezoelectric element to form drops.

Please add the following new paragraph immediately prior to page 3, line 22, as follows:
SUMMARY OF THE INVENTION:

Please amend the paragraph beginning at page 3, line 22, as follows:

It is a desirable aspect ~~an object~~ of the present invention to provide a piezo-DOD printing device which can print for a long time. A further desirable aspect ~~object~~ of the invention is to provide a device of this type in which, during operation, if necessary, it is possible to top up or replace the supply of printing medium. Yet a further desirable aspect ~~object~~ is to maintain the degassed state of the printing medium. Yet another desirable aspect ~~object~~ is to provide a piezo-DOD printing device which comprises a relatively simple, insensitive to disturbances, and inexpensive feed system for printing medium in order to allow continuous printing of a substrate with the printing medium.

Please amend the paragraph beginning at page 3, line 33, as follows:

This desirable aspect ~~object~~ is achieved, in a printing device of the type described in the preamble, by virtue of the fact that the working container is in communication with a releasable, flexible reservoir for degassed printing medium. According to the invention, the total stock of printing medium is formed by the content of the relatively small working container and the content of a relatively large reservoir, which may have a volume of, for example, a few litres. The working container and the reservoir form communicating vessels during normal operation due to the open connection between them. During printing, printing medium which is required flows out of the working container towards the print head for use in the printing process. The working container, on account of the communication with the reservoir as communicating vessels, is automatically topped up from the reservoir, with the pressure of the printing medium in the print head being kept within a defined pressure range as a result of the pressure exerted by

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the stock of printing medium. As a result of the open connection the liquid pressure at a certain height in the reservoir is equal to the liquid pressure at the same level in the working container. This does not apply, if between the respective containers valves, shut-off means and closing devices are present, which are controlled, and/or consecutively and repeatedly closed and opened during operation. In the printing device according to the invention an equilibrium is established between the hydrostatic pressures and height levels of the printing medium in the containers by means of free liquid exchange due to the open connection during operation. Since the reservoir and the working container are arranged at a fixed position, when the reservoir is empty the latter can be uncoupled. There is no need to interrupt operation of the printing device to do this, since the quantity of printing medium which is present in the working container functions as a buffer which is sufficient to cover the time required for replacement. Therefore, the reservoir can be changed during operation ("on the fly"). During this brief exchange of the reservoir, the open connection between the reservoir and the working container is temporarily interrupted, for example by means of an open/closed valve.

Please add the following new paragraph immediately prior to page 10, line 12, as follows:
BRIEF DESCRIPTION OF THE DRAWINGS:

Please add the following new paragraph immediately prior to page 10, line 24, as follows:
DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS:

Please amend the section description for the claims on the top of page 14, as follows:
WHAT IS CLAIMED IS: CLAIMS